**Final Technical Report, AFOSR-F49620-94-1-0164**

**Equipment for In-Situ Studies of Metal on III-IV Semiconductors**

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This supplemental grant was used to purchase a badly needed workstation for modeling of quantitative electron diffraction patterns from surfaces. The equipment purchased was an Hewlett-Packard 715/75 workstation. For reasons which are not completely clear, this computer ended up costing $58.78 less than the quote from Hewlett-Packard upon which the proposed budget was based.

In addition to providing additional computing power for calculating diffraction patterns from surfaces (see references [1-3]), it also opened up completely new areas. Perhaps the most exciting of these is computer intensive image filtering based around Wiener filters [4-5] which have allowed us to directly resolve atomic surface structures at a resolution of better than 0.25 nm [1,3,6]. We have also used these new filter methods of image restorations in a very large number of cases for work both directly supported by AFOSR and by other agencies. It is realistic to state that with these filters we have almost completely abandoned dark-room chemical printing for digital processing of images, at a substantial long-term reduction in costs.

**References**

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Physical Review B51, 10167 (1995).

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# REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188



| 1. AGENCY USE ONLY (Leave blank) | 2. REPORT DATE | 3. REPORT TYPE AND DATES COVERED |
|---|---|---|
| | | FINAL 15 Feb 94 To 14 Feb 95 |

**4. TITLE AND SUBTITLE**

EQUIPMENT FOR IN-SITU STUDIES OF METAL ON III-V SEMICONDUCTORS

**5. FUNDING NUMBERS**

F49620-94-1-0164

61102F

2303/BS

**6. AUTHOR(S)**

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**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**

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**8. PERFORMING ORGANIZATION**

AFOSR-TR-95

0474

**9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)**

AFOSR/NL
110 Duncan Ave Suite B115
Bolling AFB DC 20332-0001
Capt Hugh De Long

**AGENCY REPORT NUMBER**



**11. SUPPLEMENTARY NOTES**

**12a. DISTRIBUTION/AVAILABILITY STATEMENT**

Approved for public release;
distribution unlimited.

**12b. DISTRIBUTION CODE**

**13. ABSTRACT** *(Maximum 200 words)*

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| 14. SUBJECT TERMS | | | 15. NUMBER OF PAGES |
|---|---|---|---|
| | | | 16. PRICE CODE |
| 17. SECURITY CLASSIFICATION OF REPORT | 18. SECURITY CLASSIFICATION OF THIS PAGE | 19. SECURITY CLASSIFICATION OF ABSTRACT | 20. LIMITATION OF ABSTRACT |
| (U) | (U) | (U) | (U) |